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MARBLEHEAD PARKING STUDY

REPORT

DEC 1983

Metropolitan Area Planning Council

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The Metropolitan Area Planning Council, in cooperation with the Town of Marblehead has undertaken a study of parking issues relating to commercial and tourist oriented activities in the old town area of Marblehead. This parking report is a product of a planning effort to improve the parking situation in order to maintain the livelihood and character of Old Town Marblehead.

This report inventories, analyses and makes recommendations to improve the existing parking environment. A project area was designated, parking facilities were inventoried in Old Town and parking studies were conducted. As a result, towns of origin were identified and analyzed and parking was characterized as to accumulation profiles, peak accumulation, average duration and duration distribution.

The conclusions drawn from the preliminary information indicate that the charming, narrow streets that attract so many people to Old Town are inadequate to handle the level off traffic and parking they are being asked to bear.

This led to the formulation and analysis of several alternatives for solving Marblehead's parking problems. These alternatives include: 1. Stricter Enforcement of Parking Regulations; 2. Parking meters in Old Town; 3. Resident Parking Permit Program; 4. Expansion of Parking Facilities in Old Town and 5. Satellite Parking Lots and a Shuttle Bus Program. After evaluation of the possible alternatives the most promising approach was fou;nd to be the establishment of a satellite parking lot on the fringes of Old Town in conjunction with shuttle bus service to Old Town during the summer months.

Introduction

Marblehead is one of the premier North Shore communities. Its summer regatta, known as "race week" is one of the foremost in the country and its quaint colonial atmosphere attracts visitors from all of Massachusetts and neighboring states. This has resulted in part in a thriving tourist economy: specialty shops and restaurants and tourist services.

Although the precise contribution of out-of-town visitors is difficult to assess it is clearly substantial. Taking a somewhat different perspective, the Seareach report states that from interviews with business people:

"All retail uses in the Town are partially dependent upon tourists. Unfortunately, no statistics on the number of tourists visiting Marblehead are available, but indications are that the number is considerable, and the number of visitors is growing."[1]

In the only quantitative estimates provided by Seareach, it was suggested that 40-50% of the specialty shop sales were to out-of-town visitors with antiques and eating and drinking establishments somewhat more dependent on tourists and other businesses somewhat less. This represents a very high proportion of dependence on out-of-town visitors and the ability of the Town to serve them.

This ability is drasticallly affected by some of the same qualities

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[1] Seareach, Inc. "Marblehead Waterfront Study", November, 19[illegible].

that make Marblehead so attractive. The old pattern of winding narrow streets and densely built old houses gives the Town much of the appearance of a quaint, colonial village. But a colonial village which is no museum piece. More than many other communities, Marblehead is a living, working modern town with all the charm of days gone by. But the same narrow streets that are so charming to visit were never designed for today's cars. Parking throughout Old Town is inadequate and traffic on the winding streets is often torturously slow.

The Seareach report summarizes the traffic and parking situations:

"Other areas of Town which do experience seasonal influxes may well be also approaching capacity traffic volumes. The harbor area is reaching capacity during most of the year and seasonal high traffic demand sometimes makes congestion trying.

Parking in the downtown area is a major problem.. No information exists on the number of available parking places whether on or off streets available to residents and visitors. The number of parking violations has increased 60% since 1969 to reach 8,000 in 1979. Congestion during the summer tourist season is often severe. Tour buses averaging 9 per day which stop at Abbott Hall are unable for lack of available parking to discharge passengers to shop or dine in the harbor area."[2]

The inability to park is a multiply damaging situation. It both limits the revenue available from tourists and other potential shoppers, and it substantially reduces the quality of life for residents and other users of Old Town.

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Project Area

The study of parking conditions has been limited to a project area that includes the principal,Old Town commerical area and other attractions. It extends from roughly the High School and Gerry Street in the southwest and Pleasant Street on the northwest to the Harbor including the Fort Sewall area.

Because this area encompasses so much area not directly affected by the tourist and commercial pressures, however, it was feared that inclusion of some of the less intensively developed areas in the principal data gathering effort might dilute the results and distort impressions of actual conditions. Consequently, the main study effort has been directed at the major Old Town commercial areas, outline on Figure 1 and including some or all of Pleasant Street, Washington Street, Middle Street, Washington Square, Tucker Street, Lee Street, Hooper Street, Darling Street, State Street, Front Street, Franklin Street and Selman Street and the adjacent off-street lots and secondary streets.

Parking Inventory

The parking that is generally available to the public within the principal study area (consisting of the main commercial streets and adjacent areas) has been inventoried. This inventory has excluded residential lots and driveways, but has included other institutional lots even when they are not generally available for public use.

Table 1 - Parking Inventory

On-Street Parking (# of spaces)		Off-Street Parking (# of spaces)	
15-minute limit	2	Public - 2-hour limit	34
1-hour limit	78	Private - available for special purpose or a fee	89
2-hour limit	43	Private-not generally available	
no apparent limit	218		110
TOTAL	341	TOTAL (available)	123

TOTAL = 464

Table 1 shows a total of 464 spaces generally available for public use within the key downtown area. Figure 1 shows the distribution of these spaces. Except for private lots there are no fees or meters for parking in Old Town. About one third of the on-street spaces (123) are covered by some form of time limit, usually one or two hours. These spaces are, however, located in the most heavily used portions of Old Town.

Parking Study

A study of parking characteristics in key Old Town locations was conducted on Saturday, July 16, 1983 from 12:00 noon until 8:00 p.m. Saturday was chosen to assess the full dimensions of the tourist impact on Old Town, most of whom are day-trippers and can only travel to Marblehead on a weekend. The weather was warm and bright so the results should be indicative of the impact of tourism.

Within the areas selected for study, a subset of the key Old Town street system (see Figure 2), the license plate of the occupant of each space legal or illegal, was noted each half-hour. The area selected for study was deemed to be the busiest, not necessarily the most repesentative, for Old Town. Most of the spaces in these areas, except for those around Abbott Hall, were subject to some form of time limitation either one or two hours.

The survey methodology was selected to permit an analysis of both the town or state origin of the vehicle and the utilization/duration characteristics of the Old Town parking supply.

Origins

The town of origin (i.e. where the car was registered) was checked for the 800 Massachusetts plates noted using a combination of the Marblehead police computer and vehicle registration files maintained at the Central Transportation Planning Staff. 147 vehicles were registered in other states and were assumed to be non-local. These checks suggested that 61% of the vehicles (579 of 947 vehicles) were registered to other than Marblehead residents. The remaining 39% (398 vehicles) were registered to Marblehead residents.

The towns of origin for those vehicles originating in eastern Massachusetts have been mapped in Figure 3, noting the locations of the heaviest draw. Not unexpectantly, the communities contributing the greatest number of visitors are those immediately adjacent or nearby (Beverly, Peabody, Salem, Swampscott and Lynn) and the heavily populated core communities (Boston, Cambridge, Somerville, Brookline and Newton).

It should be noted, however, that Marblehead draws visitors throughout eastern Massachusetts including from the South Shore.

Parking Profiles and Utilization

In addition to identifying the town of origin for parked cars, the design of the study enabled a thorough analysis of other parking characteristics: accumulation profiles, peak accumulation, average duration and duration distribution.

Accumulation profiles during the study were developed for five key locations in Old Town: on-street parking on Washington Street, on Front Street and in the Abbott Hall area and off-street parking in Penni's lot and at the Landing. Accumulation profiles are compared to the total actual capacity of the area measured in actual legal spaces, and against the saturation level of an area representing the level at which drivers will perceive an area to be full - set at 85% of the actual level.

Of the areas studies, Penni's showed light utililzation, never exceeding even the saturation level, and the areas around Abbott Hall exceeded the saturation level only once. The other three locations were all very heavily utilized all day long. Front Street, with 19 available spaces counted was the worst, exceeding total, ultimate capacity for the entire

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* This accounted for only illegally parked cars occupying more than the total, legally available spaces.

study period. Peak accumulation was 25 cars, exceeding theoretical of capacity by 56% and the ultimate capacity by 32%*. Washington Street did show some below ultimate capacity use during the study period but also exceeded ultimate capacity for four of the eight hours of counting and exceed theoretical capacity during the entire study period. The Landing Lot almost never dropped below ultimate capacity during the study period but similarly never exceed it. Basically this lot filled up and stayed filled.

Parked cars were analyzed for their length of stay as well. This was done by each of three analysis subareas. Area 1 consits of the area around Abbott Hall, area 2 of the counted portion of Washington Street, area 3 of the combined locations at Front Street and the Landing lot, and area 4 includes Penni's Parking lot.

Table 2 - Parking Duration

	Area 1 Abbott Hall		Area 2 Washington St.		Area 3 Front St. & Landing Lot		Area 4 Penni's Lot	
Stay	#	%*	#	%*	#	%*	#	%*
1/2 hour	80	7	120	14	54	8	185	78
1 hour	46	8	62	16	43	12	15	13
11/2 hours	40	11	37	13	26	11	4	5
2 hours	18	7	28	13	28	16	-	-
21/2 hours	20	9	21	12	8	6	2	4
3 hours	10	5	8	6	5	4	-	-
31/2 hours	5	3	2	1	2	2	-	-
4 hours	8	6	3	3	5	6	-	-
4+ hours	35	43	17	23	19	40	-	-
Average Stay	2.10 hours		1.43 hours		1.8 hours		0.6 hours	
Utilization as % of total space-hours available	75%		94%		93%		265%	

*percent is percent of total space-hours available, not percent total parkers. Total may not equal 100% due to rounding.

The preponderance of very short stay parkers (median 1/2 hour) is rather unusual in a tourist oriented area. Normally, it would be expected that people would wish to park and tour the area, leaving their car put. This behavior is somewhat mitigated by the comparatively long duration average stay, reaching to over two hours in the area of Abbott Hall.

This effect is undoubtedly partially accounted for by the one and two hour parking limits in much of the area surveyed. This is made partilcularly evident in the Abbott Hall area which has the only major supply of unlilmited duration parking and the average stay is in excess of two hours. Still, although this area had the lowest proportion of short term parkers, 48% of the parkers were found in the two shortest duration categories - median one hour or less.

This behavior is not characteristic of tourist oriented areas. MAPC has found that this may be accounted for in part by visitors using their cars to travel within the project area. Checking a random sample of 100 Massachusetts plates, it was found that seven of them appeared within the survey area more than once. Since the spaces surveyed represent about 50% of those available in the key, busy area, it may be inferred that approximately 28% of the visitors travel to more than one location within the project area. This is probably motivated by a combination of the time limits on parking and the perceived distances and/or lack of connection between separate areas of Old Town.

The tendency to travel by car to more than one location will contribute to both the parking and the traffic problem.

Conclusion

From the above, preliminary information, several conclusions are apparent:

1. Marblehead has come to rely economically, in part, on the tourist trade for a significant portion of Old Town's economic health. The tourist trade in town relies on access by automobile.
2. The charming, narrow streets that attract so many people are inadequate to handle the level of traffic and parking they are being asked to bear. The tourist trade is choking-off both itself and resident's ability to patronize Old Town shops, resturants and services. Parking supplies throughout Old Town are inadequate.
3. More than sixty percent of the parking (and, presumably, the traffic) demand is generated by non-Marblehead residents.
4. Available parking in the most important areas of Old Town is totally saturated, frequently operating for long periods of time above ultimate capacity, often resulting in additional congestion on the narrow streets. Ninety four percent of the total space hours available on Washington Street were utilized over the entire eight hour period, an extremely high utilization rate.
5. There is a surprisingly high percentage of short stay parkers for a tourist oriented area. This is at least in part accounted for by short time limits and multiple stops for parkers within Old Town. The remaining portion is probably accounted for by the needs of residents or other shoppers with shorter stay requirements.

Alternatives

Although the need for parking improvements in Old Town is clear, it must be remembered that the economic attractiveness of Marblehead is based in large part on its quaint character and seaside atmosphere. Parking solutions that are appropriate to shopping malls or even to other downtowns may not be appropriate here. Whatever is finally adopted must be sensitive to the town's special character. Several alternatives for solving Marblehead's parking problems have been explored in an effort to find the best solution. These are listed below with emphasis on the need for convenient, available parking for those who visit and patronize Old Town.

1. Stricter enforcement of parking regulations
2. Parking meters at high volume locations in Old Town
3. Resident Parking Permit Program
4. Expansion of parking facilities in Old Town
5. Satellite Parking lots with or without a Shuttle Bus program

In general the alternatives fall into 2 categories - those that attempt to make more efficient use of existing parking and those that expand parking. A combination of alternatives may be the best solution. Keeping these objectives in mind, the alternative solutions are examined below.

Stricter Enforcemet of Parking Regulations

Enforcement of regulations is one method of ensuring parking turnover and maximum efficiency in space utilization of on-street parking in Old Town.

Enforcing regulations is the easiest solution and requires little cost to implement. Also, enforcement of time limits and no parking areas, ticketing of illegal parkers, etc. in conjunction with all alternatives presented is necessary for the success of any parking improvements. The town of Marblehead needs to upgrade and improve its enforcement techniques and coordination and cooperation with the police department is important.

However, because of high volumes of parkers in Old Town and parking exceeding capacity on both Washington Street and Front Street, enforcement of parking regulations alone will not solve the problem.

Introduce Parking Meters in Old Town

Long term parking in on-street spaces was not found to be the most important problem in Old Town, however, installing parking meters on the busier streets and parking areas is another method of encouraging proper turnover resulting in more efficient use of existing spaces. The main function of parking meters is not to provide a source of revenue, although they can usually be made to pay for themselves, but as a more effective means of achieving enforcement and limiting parking duration. Bringing all on-street parking within posted limits could effectively increase the parking supply by about 1000 vehicles per day.

These gains are not made without some consequences to the town. It is frequently felt that parking meters create a negative image and many communities have rejected them on that basis. Locating meters on the narrow sidewalks further decreases the width of the walkway and intrudes on pedestrians. Nor does this alternative create spaces greatly needed in Old Town. Although it may be considered for a partial solution, it is not

the best alternative for solving the parking inadequacies the size and/or magnetude of Marblehead's.

Resident Parking Permit Program

From information analyzed in the field study, 398 vehicles registered to Marblehead residents competed with 579 non-Marblehead residents for 204 parking spaces in Old Town within an 8 hour Saturday time period. These data indicated that Marblehead residents are at a real disadvantage when trying to park in and use their own downtown. In addition, residents who live in the Old Town area are in constant competition for parking with the visitors.

One solution to this parking problem which would increase the number of spaces for residents is the establishment of a resident parking sticker program.

There are several means of implementing a resident parking program. Two options which could best suit Marblehead's needs are:

1. provide parking permits to all Marblehead residents or
2. provide permits only for those residents living within the Old Town area.

Strict enforcement of a resident parking program at all times is necessary for the success of such a program.

Detailed case studies of Resident-Parking-Sticker Programs in several cities are included in the appendix. Along with these examples, a parking program in Nantucket, MA was researched as a town that experiences similar strains on parking due to tourism. According to the Nantucket Planning Commission, Nantucket was experiencing parking problems due to tourists and employees filling the available spaces for the entire day. In order to free the convenient parking spaces for residents and shoppers, Nantucket implemented a resident parking program that includes a 1 hour parking limit in the core downtown with a 2 hour limit and resident parking in the ring surrounding the core area. A $15.00 parking fine is enforced by meter maids and an estimate of 400 cars have been eliminated in the downtown area during the day. The town feels the program has been a success and is looking into additional ways to improve parking. However to be truly successful, a resident parking program in Marblehead must be coordinated with expansion of spaces.

Expansion of Parking Facilities in Old Town

Another possible solution which has been explored is expanding existing parking and obtaining properties for parking development in Old Town. This has the advantage of actually increasing spaces and commercial activities. In order for expansion of parking facilities to be a success; parking must be close to both shopping and the harbor area and should result in a substantial expansion of spaces. Because of the general unavailability of land and properties in Old Town, this is a very expensive and difficult avenue to pursue.

The Old North Church's parking lot, conveniently located in Old Town off of Washington Street has been cited as a possible location for visitor parking. However at present, the church fears use of this lot by the public would result in the unavailability of the parking lot for church functions. There are two school department sites which could provide a mimimal amount of parking, the Gerry School and Story School, both in rather inconspicuous locations of town.

There is also the possibility of constructing a parking garage in the Old Town area but it probably would face the same negative reaction as meters, only on a much larger scale.

Relying on expansion of parking in Old Town alone is not a realistic solution to the parking problems at present. However, it would be in the towns best interest to keep informed of any land that becomes available for purchase and develop it as an alternative.

The alternatives presented thus far have not dealt with a very important matter in the quest for creative, long term solultions to Marblehead's expanding parking and traffic problems. Neither a resident permit parking program, installilng parking metes, nor stricter enforcement of regulations provide for additional spaces desperately needed in Old Town. Even if the town acquired a 50 car parking lot in Old Town, the demand for more parking exceeds the supply far beyond this simple solution. This is not to say that any one or a combination of these alternatives would not result in an improved parking situation, but will require more definitive action.

At present, the most realistic means of achieving this appears to be through developing a satellite parking lot capable of handling the parking load served by a shuttle bus system. This alternative would not only increase the amount of parking available but may also help to alleviate traffic in Old Town.

Satellite Parking Lots and Shuttle Bus Program

This idea is not a new one to tourist oriented communities throughout Massachusetts. Satellite buses provide ample parking and a way for people to get arou;nd town in a relaxed, enjoyable fashion. Towns like Rockport, Plymouth, Salem and Wellesley have had success with such a program.

There are several different options to consider under this alternative. Satellite parking alone would supply additional parking spaces needed in Marblehead. A shuttle bus service throughout Old Town could alleviate some of the traffic conjestion caused by drivers continual search for parking. The specific details of a program which includes satellilte parking in combination with a shuttle bus service will help explain why both options together are the most attractive solution to the problem.

Several locations for satellite parking were considered based on the following requirements: 1. Easy access from Rt. 129 and Rt. 114; 2. availability of a site during the summer months between May 31 and September 1; 3. a site large enough to handle at least 200 cars; 4. a site which has a fence or border and some type of controlled access point and 5. a site which presently requires low maintenance, has proper drainage,

and would not require major improvements. Two sites were found to satisfy these criteria, both owned by the school department. The first site is playing fields behind the town school administration building off of Rt. 114 known as Tents Corner and the second is the senior high school practice fields adjacent to the high school building.

At the Tents Corner site, a somewhat unsuccessful attempt was made in 1976 to develop satellite parking in conjunction with a shuttle bus service. MAPC feels that there were several deficiencies in this earlier effort that need not hinder the success of a newer one. Lack of proper signage and advertising appeared to be the major oversights. Tents Corner is also relatively unaccessable from both Routes 114 and 129 and for the best chance of success additional access from Route 129 should be provided. Tents Corner does provide approximately 11 acres of flat, open space ideal for accomodating over 1,000 cars. It is not a highly utilized field during the summer months and could provide a site for satellite parking. Also, the school property at Tents Corner contains land of overgrown vegetation adjacent to the school building which could be developed as a permanent lot at some initial expense.

A more desirable location for satellite parking is the senior high school practice fields. They are situated on the fringe of Old Town and are extremely convenient from both Route 129 and 114. Because of its high visibility and excellent access this site is considered the best for satellilte parking. This area provides over 3 acres of suitable land which could accomodate 400+ cars for parking. The fields are available during the summer months and the only maintenance required would be to resod the fields in the fall for use during the school year. There

appears to be no problems with drainage or muddy soil. After a week of hard rain, the field was observed to be completely free of standing water and the ground was pourous and firm. Because the field is totally fenced in with chain link fencing and has two controlled gates at either access point it provides excellent conditions for fee collection and access control.

In order to make parking at such a distance more attractive to visitors, a shuttle service would probably be required. The criteria for implementing such a program in Marblehead include: 1. a fee structure based on convenience and incentive to use the shuttle service; 2. a direct route through Old Town with convenient drop off and pick up points; 3. a service which operates during the busiest periods of the week and weekends; 4. a maximum of about 15 minutes between shuttles; and 5. availability of vehicles and drivers during the summer months.

One method of setting up a fee system for shuttle services is by charging a fixed fee to park in a satellite lot and operate a shuttle service free of charge. This would encourage people to use the shuttle without any restrictions.

As an aid to analyzing the feasibility of a shuttle service, sample routes have been laid out. Since the high school parking site appears better suited to this requirement it has been selected as a terminus for both sample routes and is portrayed on the accompanying figures. The selection of the Tents Corner site would not materially alter these routes, but would merely add distance to the routes at their remote end.

In the basic route, (see figure 4) the bus would travel down Pleasant Street and turn right onto Washington Street,continue past Abbott Hall (drop off #2) and down Washington Street to the Old Town shopping area. Another drop off point would occur along Washington Street and from there the bus would make a right turn onto State Street and precede toward the harbor. A drop off point along Front Street at the Harbor would allow people to stop and utilize the waterfront area. The bus route continues north along Front Street to Franklin Street where a drop off point would provide access to Fort Sewall and the Harbor. From here, the bus loops around and follows Washington Street back to Market Square where it takes a right onto Mugford Street and then left onto Elm Street. The bus continues along Elm Street and connects with Pleasant Street at Spring Street. A stop would be located at the intersection of Spring Street and Pleasant Street and from here the bus follows Pleasant Street back to the high school. This route has the advantage of working with streets in the existing circulation pattern, although it is less efficient as an overall route than it could be. An alternative to this route that results in considerably greater efficiency would require changing the direction of traffic along Pleasant Street off of Washington Street as indicated in Figure 5. This provides a more direct route through Old Town and includes an additional stop along Pleasant Street. The route indicated in Figure 4 is 2.7 miles long and can be driven in less than 10 minutes not including stops. The intersections appear adequate to handle a standard school bus and several buses were observed driving in Old Town along with the MBTA buses. Access to the senior high school lot would be from Pleasant Street (Rt. 114) by car and the Village Street entrance to the high school by bus.

If adapted, it is suggested that a shuttle be in service weekdays from 12 noon -8pm or 10:00am-6:00pm and Saturday and Sunday from 10:00-8:00pm. Two buses running at 20 minute intervals could provide shuttle service every 10 minutes along a designated route with drop off and pick up points.

Since the school department leases only 2 buses throughout the 180 day school year other provisions would have to be made to obtain buses and drivers. One option is for the town to continue a contract with Michaud Bus Co. and lease 2 buses and drivers throughout the summer months between May 31-September 1. Although a standard school bus is the least expensive option, it is not the most attractive vehicle for a shuttle service in Marblehead.

Another option is the purchase or lease of a trackless, motorized trolley for a shuttle service which would add charm to Old Town. Trolleys are available in different styles including a popular wood trimmed reproduction of a San Francisco cable car and other open air trolleys.

Costs and Economic Analysis

Enforcemet of parking regulations could be achieved with little cost to the town. The minimal costs include: purchase and installation of parking signs and salaries required to pay police or others to enforce such regulations. Revenue to the town under this alternative would be in the form of fines charged to those who do not obey the parking regulations.

Introducing parking meters in Old Town would require an initial expense to purchase and install the meters. The cost for purchase and installation of each meter would be about $175.00. In addition, parking meters require little cost to maintain and police, (collections, enforcement, etc.). In analyzing the economic advantage of parking meters, based on experience elsewhere a 50% revenue utilization factor was selected and a total fee of $.10 per hour. Based on a typical 10 hour revenue day and 300 revenue days per year each space could produce an annual revenue yield of $140.00 above its estimated maintenance costs. At town lending rates of 8.5% this would amortize the cost of the collection system alone for the meters in about 1 1/2 years.

The costs for implementing a Resident-Parking-Program are minimal depending on the type of program adopted. Costs and revenue of resident-parking-sticker programs are presented on pages 16-21 of the Resident-Parking-Sticker Programs report in the appendix.

The cost of expansion of parking facilities in Old Town varies according to the type of acquisition and the improvements necessary to develop parking. As previously stated, because of the general unavailability of land and properties, expanding existing parking and/or obtaining properties for parking in Old Town is a very expensive avenue to pursue. After analysis of taking/developing a downtown lot for parking it was concluded that a solution of this type could not be expected to amortize its total development cost although it could be expected to support its own maintenance and amortize the cost of a fee collection system, if a fee is imposed.

Detailed cost and economic analysis of the establishment of a satellite parking lot in conjunction with a shuttle service reveal the feasibililty of this solution to solving parking problems in Marblehead.

The costs involved include:

1. salary for fee collector at parking lot entrance
2. advertising and signage
3. resod the playing field after summer use.
4. purchase or lease of shuttle vehicle.

Based on a 60 hour a week operating schedule and on hourly wage rate of $6.00 for fee collectors, the salary requirement would be $360.00/week. Operating over a 13 week period between May 31 - September 1, the total cost for employment is $4,680.00 annually. Depending on the extent of an advertising campaign and signage an additional cost of $2,000.00 is estimated. Resodding a 2 acre playing field each year including: stripping remaining sod, roto-tilling the soil and laying new sod at $.35/sq.ft. costs $30,000.00. (Note: the complete establishment of new sod under normal conditions is 2 weeks). Based on figures acquired from Michaud Bus Co. the leasing of a standard school bus and driver would be $19.00/hour and a total cost for the season for 2 buses is $29,600. The lease or purchase of a trolley would be a substantial capital cost (see attached information). School buses are more economic and practical initially with the purchase of trolleys a possible improvement after the program is well established.

The total annual cost for implementing a satellite parking lot and shuttle bus service comes to $66,300.00. Revenue generated by a fee structue has

been explored as a means of off-setting these costs. Based on fees established by other towns and the cost of competitive parking in Old Town a fixed fee of $3.00 is recommended as a realistic fee. Based on the figures recorded in the field studies, a total of 579 visitors (non Marblehead residents) parked in Old Town on a busy Saturday. Assuming this is a typical rate for weekends and 50% of that figure for weekday parking, a total of 2605 visitors park in Old Town in a summer week. This figure is somewhat generous because the area surveyed was only a partial area of Old Town within an 8 hour period. Assuming these visitors utilize the satellite parking and shuttle bus service between May 31 - September 1, the total annual revenue generated by the fee system minus the annual costs of operation could be $35,300.00. To break even would require only 1700 vehicles in an average week to cover the $66,300.00 annual cost of operation.

In conclusion, satellite parking and a shuttle service not only provide additional parking and access to Old Town, but could be a substantial source of revenue for the town without even charging for the shuttle service. The conditions in Marblehead are excellent for implementing such a program and one could be developed immediately. It is suggested that the satellite parking and shuttle service program be implemented on a trial basis, realizing that it may require more than one season before it is fully established. A strong advertising program and good signage are essential before the start of and throughout the season. To familiarize people with the lot and shuttle service maps could be printed and distributed through merchants. In coordination with this program, stricted enforcement of existing parking regulations is essential and enforcement of any new regulations is necessary for the success of parking improvements.

A Resident-Parking-Sticker Program in conjunction with satellite parking and a shuttle service may be necessary if the increasing amount of visitors continue to inhibit residents use of their downtown. Assumimg the economic activities in Marblehead continue to prosper and Marblehead continues to attract visitors from all parts of the country, an additional 200+ car lot on the fringes of Old Town serviced by a shuttle bus appears to be the best solution to Marbleheads growing parking problems.

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